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09/778,880	02/08/2001	Paul Mariaggi	PET-1916	6684

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EXAMINER

RIBAR, TRAVIS B

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 03/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,880

Applicant(s)

MARIAGGI ET AL *MF-3*

Examiner

Travis B Ribar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

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DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in France on August 2, 2000. It is noted, however, that applicant has not filed a certified copy of the 00/01.617 application as required by 35 U.S.C. 119(b).

Specification

2. The disclosure is objected to because of the following informalities:

Page 7, lines 9-10: this limitation is unclear, as it is not understood what the applicant is trying to say.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2-9, 10-14, 16-17, 20-23, and 25-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claims 7, 16, and 17, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

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6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 14 recites the broad recitation "the azoisobutyronitrile family," and the claim also recites "the group formed by 2,2'-azobis(isobutyronitrile) and 2,2'-azobis(2-methylbutyronitrile)" which is the narrower statement of the range/limitation.

7. Also in the present instance, claim 21 recites the broad recitation "fibrous supports", and the claim also recites "the group formed by glass fibers, basalt fibers, carbon fibers, ceramic fibers, natural fibers, synthetic fibers, metal fibers and KVLAR" which is the narrower statement of the range/limitation.

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8. Regarding claim 7, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

9. Claim 6 recites the limitation "the formulae cited above" in line 5. There is insufficient antecedent basis for this limitation in the claim.

10. The term "...normally either in the form of monomers..." in claim 12 is a term which renders the claim indefinite. The term "...normally either in the form of monomers..." is not defined by the claim, the specification does not provide a standard for ascertaining its meaning, and one of ordinary skill in the art would not be reasonably apprised of the limitations of this claim.

11. Regarding claim 12, the examiner does not understand the claim as written. Are the trademarked compounds listed supposed to be included in this resin? It is also unclear what structure of polymer is being claimed by the applicant here.

12. Regarding claims 2, 4-9, 11, 13-14, 20-23, 25-26, and 28, the term, "...the group formed by..." forms an improper Markush group. These groups as written contain open language. Applicant is reminded that proper Markush groups contain closed language. Amendment of these claims to read, "...the group consisting of..." where the group

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referred to is written as, "...A, B, C, and D..." as opposed to, "...A, B, C, or D..." is suggested.

13. The term "...associated with ..." in claims 3, 4, and 27 is a term that renders the claim indefinite. The term "...associated with..." is not defined by the claim, the specification does not provide a standard for ascertaining its meaning, and one of ordinary skill in the art would not be reasonably apprised of the limitations of this claim. For the purposes of examination, the examiner will understand this term to mean, "...is or is used in conjunction with..."

14. Regarding claim 22, the examiner does not understand the limitations of the claim (see objection above). It is unclear from the language of the claim what comprises "...non aggressive resins chemically or on inflating the internal and external elastic skins..." For the purposes of this examination, this claim will be presumed to mean any resin that will not degrade the preform.

15. Regarding claims 12 and 21, the use of trademarks or trade names renders the claim indefinite because trademarks or trade names identify a source of goods, but do not identify or describe the goods, see MPEP § 608.01 (v).

16. The term "acrylic type" in claim 8 is a relative term which renders the claim indefinite. The term "acrylic type" is not defined by the claim, the specification does not

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provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear to the examiner exactly which chemical structures fall under this definition.

17. Regarding claims 25 and 26, the absorbance values claimed by the applicant are not complete. Other material factors, including the pressure and concentration of petroleum and water needed for the claimed absorptions, are not specified in the claim. Therefore, one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

19. Claims 1-3 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiest, Jr.

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Claim 1 is directed toward a flexible preform that is curable and molds to the shape of an external surface, such as the inside of a well or pipe, where the resin forming the curable polymer comprises a curable multiple bond. Claims 2 and 3 then define the resin as being unsaturated polyester or vinyl ester, or being any polymerizable oligomer containing at least one multiple bond, respectively. The resins used are then claimed to enable the embedding of fibrous materials into the thermoset (claim 21) and also to not cause degradation of the inflating device either during preparation (claim 22) or curing (claim 23).

Kiest, Jr. is drawn to an expandable pipe liner and a method for installing it. The pipe liner includes an expandable fabric liner that expands radially to form a new pipe lining inside a pipe. The process involves impregnating a fibrous fabric liner (a preform) with a curable resin, inflating the fabric liner such that it contacts the sides of a pipe, and curing the resin (column 5, lines 15-31). The material used for the resin material is shown to include vinylester resin or polyester resin (column 8, lines 8-13), and may be cured at either elevated temperatures or allowed to cure at room temperature if possible. This thereby meets applicant's claims 1-3 and 21. One method of inflating the fabric liner involves the use of an inflation bladder (column 12, lines 11-14). Since such a use is shown, it is assumed inherent to this composition that the resin does not degrade such a bladder, which would render the bladder useless. Therefore, Kiest, Jr. also meets the requirements set forth by the applicant in claims 22-23.

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20. Claims 1-3 and 21-23, are rejected under 35 U.S.C. 102(e) as being anticipated by Walsh et al.

Claims 1-3 and 21-23 are as described above.

Walsh et al. involves a conduit repair system in which an inflatable bladder is used (column 2, lines 49-51) to press a preform of fiber-reinforced material (column 2, lines 63-66) impregnated with a thermosetting resin of polyester or vinylester (column 3, lines 8-14) against the interior of a damaged conduit. The polymer is then cured, fixing the conduit. This meets the requirements put forth in applicant's claims 1-3 and 21. Since the use of an inflatable bladder is shown, it is assumed inherent to this composition that the resin does not degrade such a bladder, which would render the bladder useless. Therefore, Walsh et al. also meets the requirements set forth by the applicant in claims 22-23.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claims 4-11, 13-14, 18-20, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiest, Jr. and Walsh et al., each in view of Adembri et al.

The applicant defines the resin as being associated with vinyl, acrylic, methacrylic, allyl or maleic compounds (claim 4). The exact composition of a polyester

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resin used in this invention is then claimed in claims 5-7, while claims 8-9 define a vinylester compound used as the resin. The possibility of using more than one resin concurrently in the present invention is brought up in claim 10. The polymerizable oligomer or monomer is further specified in claim 11.

Possible initiators are included in the claimed invention (claims 13 and 14), as well as the curing temperature of the resin (claim 24). Claims 18-20 are drawn to material properties such as residual latent periods after storage at set temperatures (claims 18-19) and the dynamic viscosity of the resin (claim 20).

Kiest, Jr. and Walsh et al. are applied to claims 1-3 and 21-23 as shown above, but do not show the specific chemical compositions of the resins, the processing compositions, or the resin properties that are specified by the applicant.

Adembri et al. teaches unsaturated polyester and vinylester compositions successfully used for preparing composite articles with good mechanical properties. The compositions of the unsaturated polyesters shown (column 4, lines 45-64) are created from the same material as those claimed by the applicant in claims 4 and 7. The polyols listed as applicable in the invention shown in Adembri et al. (column 5, lines 30-55) also form a polymer that fulfills the requirements set forth by the applicant in claims 5 and 6.

Adembri et al. teaches vinylester compositions (column 5, lines 8-13) that fulfill the applicant's requirements (applicant's claims 8-9). These vinylester and polyester compositions are taught to be compatible and are claimed as blends (Adembri et al. claim 1), fulfilling the applicant's claim 10. Finally, Adembri et al. shows that styrene

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may be used in the invention claimed (column 5, lines 22-23), meeting the restrictions set forth in claim 11.

The initiators used in Adembri et al. (column 5, lines 56-65) also fit the claimed initiators of the present invention (claims 13-14).

The applicant's claims 18-20 are drawn to inherent material properties. The residual latent periods shown in claims 18 and 19 may be controlled by the selection of the proper polymer components. As Adembri et al. teaches the use of all of the components used by the applicant and teaches that the induction time for the polymers is readily controlled (column 2, line 25), as well as the gelation times (column 7, lines 1-3), the residual latent periods claimed by the applicant are deemed to be inherently present in the invention of Adembri et al. The viscosity of the resins is shown by Adembri et al. to be of interest as well, as its value is reported therein (column 9, lines 15-35) as being important for processing conditions and mechanical properties (column 4, lines 59-64). It is well-known in the art to control the viscosity of a polymer solution by the corresponding alteration of its molecular weight. Since a change in molecular weight alone does not exceed the scope of Adembri et al., the viscosity claimed by the applicant in claim 20 is envisioned in Adembri et al.

Finally, Adembri et al. shows the curing of the polymer composition at 100 °C, which falls under the requirements of the applicant's claim 24.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the resin composition and processing conditions found in Adembri et

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al. in the inventions of Kiest, Jr. and Walsh et al. in order to create pipe liners and wall repairs that possess high mechanical strength.

23. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiest, Jr. and Walsh et al., each in view of Scheibelhoffer et al.

Claims 15-17 involve curing initiators and inhibitors present in the resin of the invention. Kiest, Jr. and Walsh et al. teach the use of the resin shown in the present application, but do not mention the use of either an initiator or an inhibitor nor the specific initiators or inhibitors claimed by the applicant.

Scheibelhoffer et al. reflects unsaturated polyester compositions. Curing initiators (termed, "promoters" by the reference) are taught as beneficial in decreasing the gel time needed, while curing inhibitors are taught as beneficial in increasing the gel time (column 8, line 67 to column 9, line 4). Specifically, the inhibitors and initiators claimed by the applicant are taught as applicable to unsaturated polyester systems (column 8, lines 30-44 and column 8, line 67 to column 9, line 4) in this reference. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the initiators or inhibitors taught in Scheibelhoffer et al. as initiators or inhibitors in the inventions of Kiest, Jr. and Walsh et al. in order to control the gel time of the resin.

24. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kiest, Jr. and Walsh et al., each in view of Shustack.

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Claim 26 is drawn to a property of the resin where the absorption of water by the resin is low. Kiest, Jr. and Walsh et al. teach the use of the resin shown in the present application, but do not mention the water absorption properties of the resin.

Shustack shows the use of a polyurethane resin in an application in which the absorption of water by the polymer is kept within the range of applicant's claim 26 (column 21, lines 11-13). Polyurethane is a resin that fulfills the applicant's requirements for the resin part of the current invention. It contains a multiple bond on an isocyanate that reacts with a polyol to form a polyurethane. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the resin shown in Shustack in the inventions of Kiest, Jr. and Walsh et al. in order to create pipe liners and wall repairs with low water absorption properties.

25. Claims 1-11, 13-14, and 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller in view of Adembri et al.

Muller is drawn to a method of repairing buried pipes. It discloses the use of a tubular preform (column 2, lines 20-25) that expands to deposit a layer of composite material around the interior of a pipe in order to fix a crack or defect in the pipe. The composite material comprises a curable plastic substance impregnated within a fibrous material (column 2, lines 59-67). This composite is coated on an inflatable tubular mat, forming a preform. The curable plastic substance is taught to be able to be cured either at room temperature or with the application of heat (column 8, lines 13-14). An example of the curable plastic substance is shown to be epoxy (column 8, lines 11-12), though it

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is clearly implied that many different curable plastic substances may be used. Muller therefore shows the same structure claimed by the applicant, but not the resin used therein.

Adembri et al. shows many resins useful in composite applications, and is applied to the current application as shown above. Since Muller does not specify an exact resin for use in that pipe-fixing system, stating only that the resin need be curable, and since the resins in Adembri et al. are not only curable, but very useful in composite applications due to their high strength, it would have been obvious to one of ordinary skill in the art at the time of invention to use the resins shown in Adembri et al. in the invention of Muller in order to create a composite structure with good mechanical properties.

26. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kiest, Jr., Walsh et al., and Muller each in view of Fauble et al.

Claim 25 includes the requirement that the resin used in the present invention have good resistance to gasoline and petroleum. Kiest, Jr., Walsh et al., and Muller teach the use of the device shown in the present application, but do not mention the gasoline or petroleum absorption properties of the resin that is used.

Fauble et al. teaches the use of monomers that fulfill the requirements set forth by the applicant in claim 1 (column 3, lines 53-54) and teach that these compositions have very low gasoline and petroleum absorbencies (Fauble et al. figure 6). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to

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use the resin shown in Fauble et al. in the inventions of Kiest, Jr., Walsh et al., and Muller in order to obtain a structure with a high impermeability to petroleum.

27. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiest, Jr., Walsh et al., and Muller each in view of Dumlao.

Claims 27 and 28 require the use of a second polymer in the resin, acting as a "flow regulator," which the applicant defines as any one of a number of thermoplastic polymers. Kiest, Jr., Walsh et al., and Muller teach the use of the device shown in the present application, but do not mention the use of blends of materials including thermoplastic polymers with thermosetting polymers. In the present invention, the thermoplastic polymers in such a blend are termed "flow regulators."

Dumlao is drawn to a composite structure with a very high mechanical strength for use in a support structure. The resin used in Dumlao is used in conjunction with various fibrous materials (column 7, lines 42-50) and is also shown to possibly comprise a blend of thermosetting materials fulfilling the requirements put forth by the applicant in claim 1 and thermoplastic materials, including polystyrene (applicant's claim 28). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the resins shown in Dumlao in the inventions of Kiest, Jr., Walsh et al., and Muller in order to obtain a seal with high mechanical strength.

Conclusion

28. The enclosed French search report is noted by the examiner and the art applied in this office action is considered more relevant than that found within the search report.

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barton (U.S. Patent No. 5,049,003), showing the claimed method for repairing a pipe.

Marutani et al. (U.S. Patent No. 6,040,009), showing the use of curable resins in applications requiring low gasoline absorption.

Boxmeyer (U.S. Patent No. 4,514,447), showing the claimed method for repairing a pipe.

Cohee et al. (U.S. Patent No. 5,651,848), showing the claimed method for repairing a pipe.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis B Ribar whose telephone number is (703) 305-3140. The examiner can normally be reached on 8:30-5:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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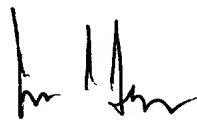
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872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Travis B Ribar
Examiner
Art Unit 1711

TBR
February 8, 2002

A handwritten signature in black ink, appearing to read 'Travis B Ribar', is written over a faint, circular official stamp.